US Army Corps of Engineers®

Flood & Coastal Storm Damage Reduction R&D Program

Helicopter Emergency Reconnaissance Observer (HERO) System

Description

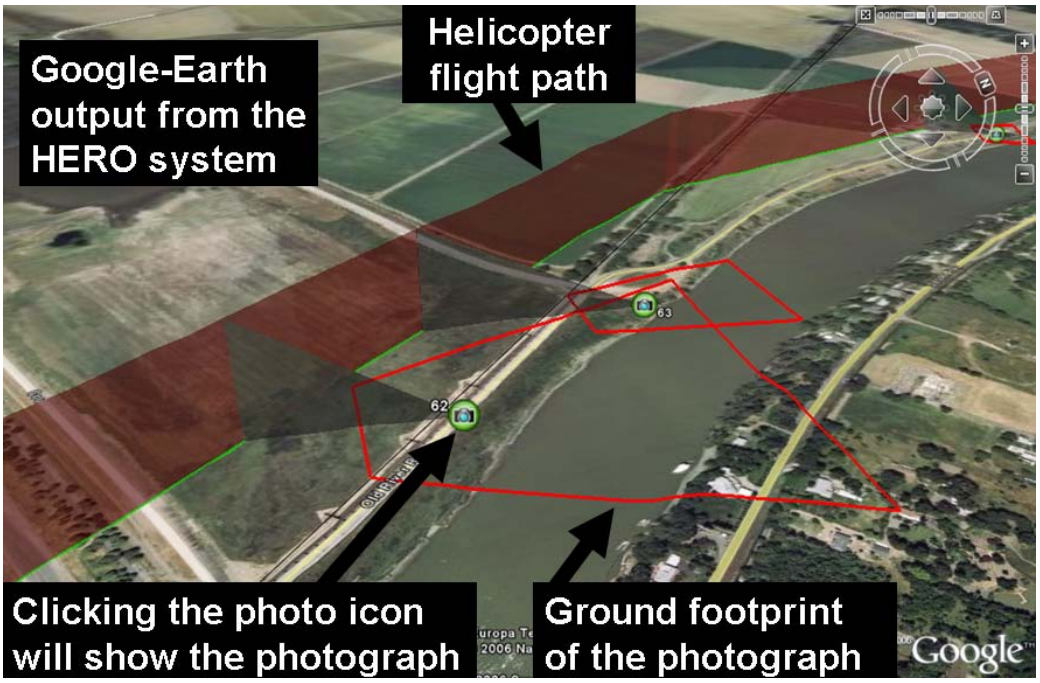
The Helicopter Emergency Reconnaissance Observer (HERO) system performs county-wide levee observer based evaluation using an integrated helicopter reconnaissance system. The Helicopter observer takes photos of ground damage (the HERO software determines the photograph ground image corners) and then the observer identifies the ground damage situation (which takes less than 5 sec). The HERO system is an ongoing research project that has been field demonstrated. The HERO approach only requires one observer in the helicopter and the observation data are ready for database download and Google-Earth™ output when the helicopter lands.

Issue

Rapid and comprehensive damage assessment of levee systems is critical during and after hurricanes and coastal storms.

Potential Users

Corps Districts, Federal Emergency Management Agency (FEMA), and other Federal, state and local agencies involved in emergency response to disasters.



Products

The HERO outcomes are as follows:

All observations (damage codes and severity indexes) and digital photographs will be Global Positioning System (GPS) referenced. All photos, ground photo footprints, and

damage indexes will be converted into a high graphic Google-Earth™ format and also be database ready when the helicopter lands – no post-processing is required. There is also no potential for duplication because the observer monitors all previous taken photos in real-time on the observer's monitor.

The next development step will be to modify the HERO software so that the HERO data feeds directly into the Integrated Levee Monitoring Utility, the National Levee Database, EngLink, and CorpsMap. This is not a major effort. The HERO system requires new software drivers requiring some changes to the software. The HERO hardware will go to version 2 by the end of FY08. Other needs include modifications to the human interface (to ensure a 10-min learning curve) and work on anticipating how sensors are affected by aircraft dynamics.

Benefits

The HERO systems allow rapid assessment for large areas where safe access may not be possible. Airborne reconnaissance also allows a large-scale view so that systemic failures can be observed, which might be missed by ground-based teams. Properly formatted data will allow critical levee locations to be quickly displayed in various scenario and situational graphics. This will benefit the Corps, local flood damage reduction and emergency response agencies, and the Nation by demonstrating the feasibility of an integrated urban flood damage support system that addresses geotechnical, hydrologic, hydraulic, and flood damage aspects of urban flooding.

Point of Contact

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Partners

N/A.